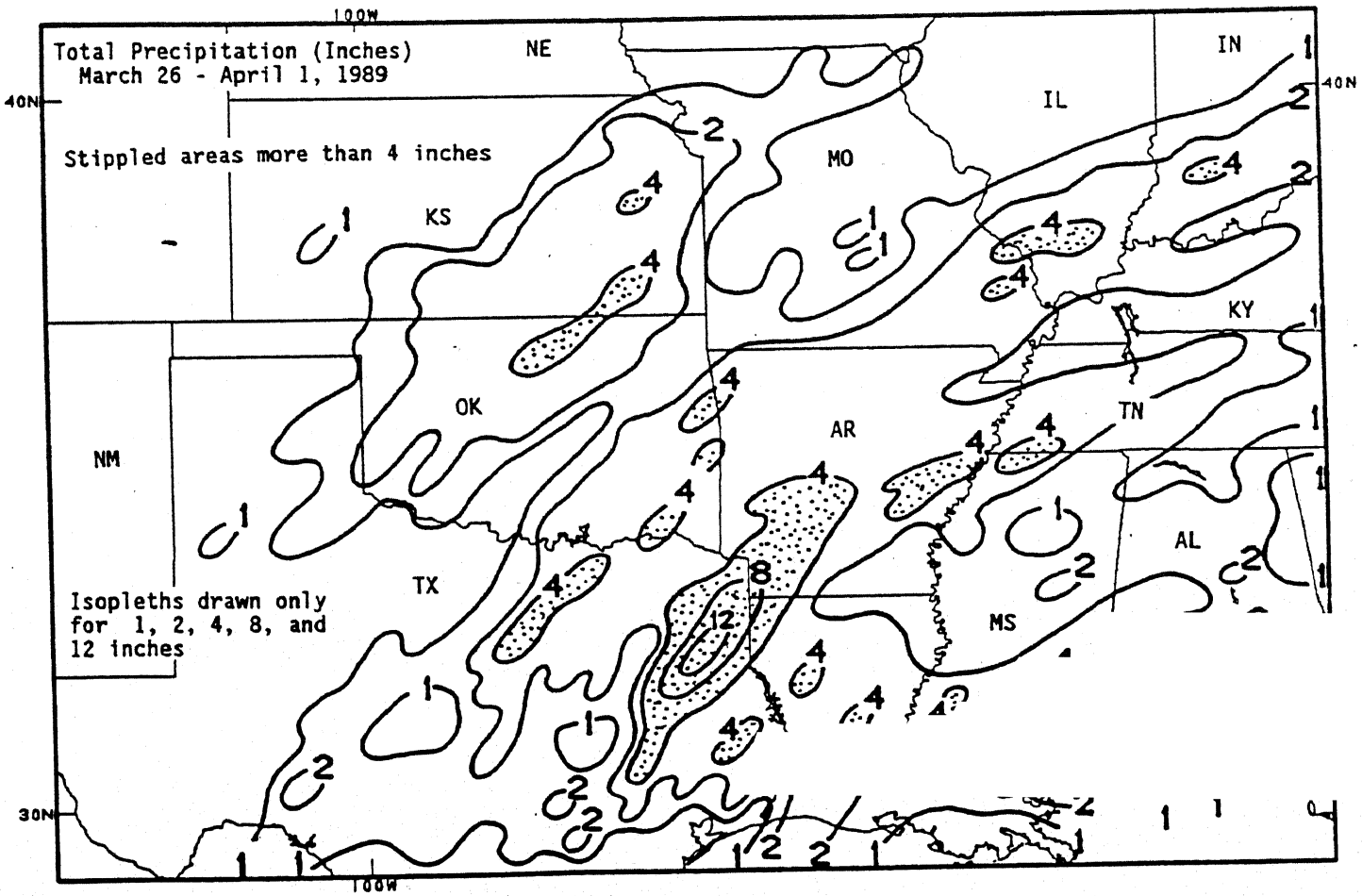
CLIMATE ANALYSIS CENTER

WEEKLY CLIMATE BULLETIN

No. 89/13 Washington, DC April 1, 1989



STRONG THUNDERSTORMS DUMPED HEAVY RAINS ON MUCH OF THE CENTRAL AND SOUTHERN GREAT PLAINS AND THE LOWER AND MIDDLE MISSISSIPPI, OHIO, AND TENNESSEE VALLEYS. UP TO 22.1 INCHES OF RAIN FELL ON NORTHEASTERN TEXAS, CAUSING SEVERE FLOODING. FARTHER NORTH, HOWEVER, THE FIRST SUBSTANTIAL PRECIPITATION SINCE LAST OCTOBER WAS RECORDED IN EASTERN KANSAS, PROVIDING SOME RELIEF FROM LONG-TERM DRYNESS.

UNITED STATES DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

Editor:	David Miskus
Associate Editor:	Paul Sabol
Contributors:	Jeffrey D. Logan
	Keith W. Johnson
	Vernon L. Patterson
Graphics:	Robert H. Churchill
	Richard J. Tinker
	Michael C. Falciani

This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

Highlights of major global climatic events and anomalies.
U.S. climatic conditions for the previous week.
U.S. apparent temperatures (summer) or wind chill (winter).
Global two-week temperature anomalies.
Global four-week precipitation anomalies.
Global monthly temperature and precipitation anomalies.
Global three-month precipitation anomalies (once a month).
Global twelve-month precipitation anomalies (every 3 months).
Global temperature anomalies for winter and summer seasons.
Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

To receive copies of the Bulletin or change mailing address, write to:

Climate Analysis Center, W/NMC53
Attention: Weekly Climate Bulletin
NOAA, National Weather Service
Washington, DC 20233
Phone: (301) 763-8071

GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF APRIL 1, 1989

1. Coastal sections of British Columbia and Alaska:

DRY CONDITIONS PERSIST.

Little or no precipitation was reported as very dry weather continued [6 weeks].

2. Uruguay and Eastern Argentina:

BENEFICIAL RAINS END.

Dry conditions returned to the region as precipitation generally totaled less than 11.6 mm. Many stations will enter the approaching dry season with significant long-term deficits [40 weeks].

3. Northern Europe:

AREA STILL WET.

Heavy precipitation, approaching 95.1 mm, was reported in Ireland, Scotland, and Scandinavia [5 weeks].

4. Central and Southern Europe:

REGION REMAINS WARM.

Abnormally mild weather continued as temperatures averaged as much as 9.8°C above normal [12 weeks].

5. Siberia:

ANOTHER MILD WEEK.

Unseasonably mild conditions continued across central Siberia with temperatures up to 15.3°C above normal [25 weeks].

6. Eastern China, Korea, and Japan:

WARMTH PERSISTS; WETNESS EASES.

Precipitation totaled 10.2 mm or less in east central China; however, stations in Japan reported as much as 87.5 mm of rain [Ending at 6 weeks]. Abnormally high temperatures, reaching 6.3°C above normal, prevailed across the region [7 weeks].

7. Philippines:

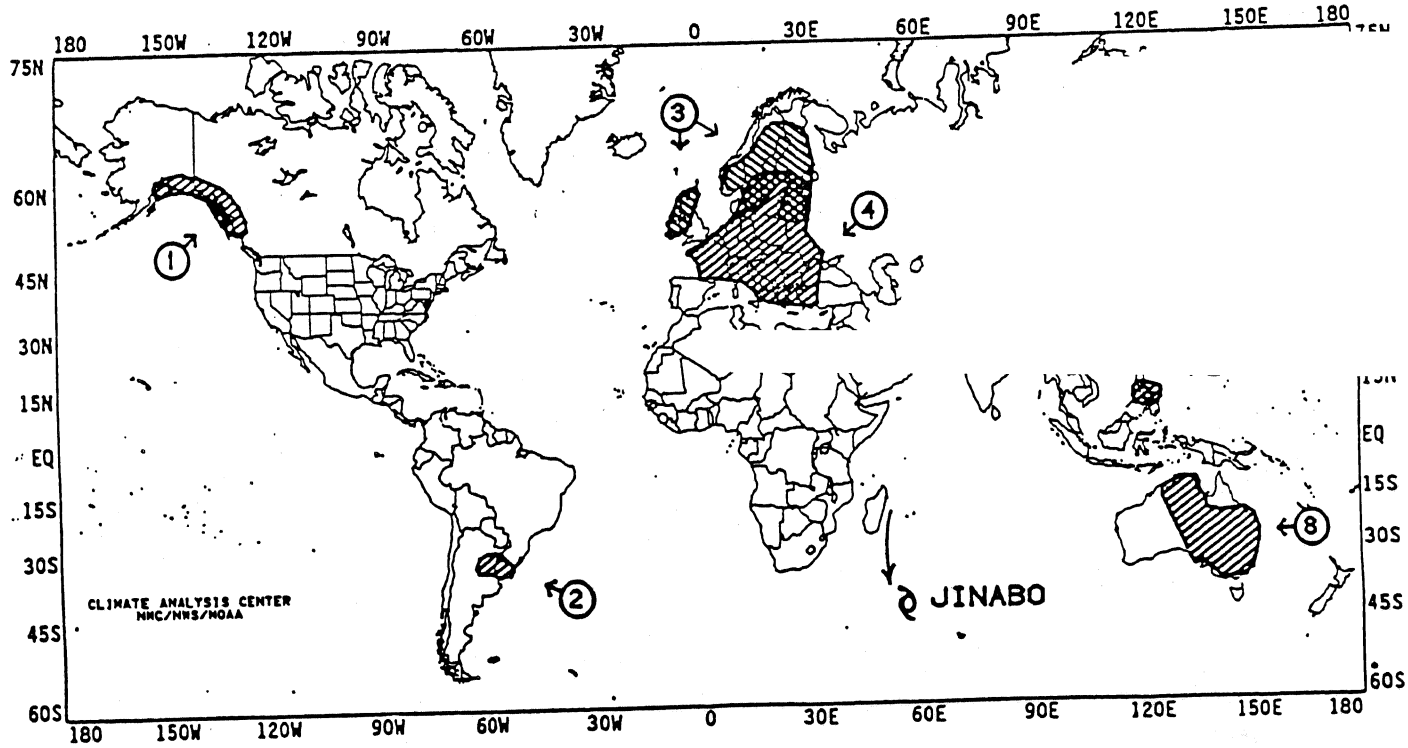
UNUSUALLY WET.

The center of the country, which normally experiences a dry season at this time, continued to receive above normal rains of up to 256 mm [5 weeks].

8. Australia:

BIG WET CONTINUES.

Unusually large quantities of rain continued to fall in many parts of central and southeastern Australia. Some areas measured as much as 208 mm [3 weeks].



EXPLANATION

TEXT: Approximate duration of anomalies is in brackets. Precipitation amounts and temperature departures are this week's values.

MAP: Approximate locations of major anomalies and episodic events are shown. See other maps in this bulletin for current two week temperature anomalies, four week precipitation anomalies, long-term anomalies, and other details.

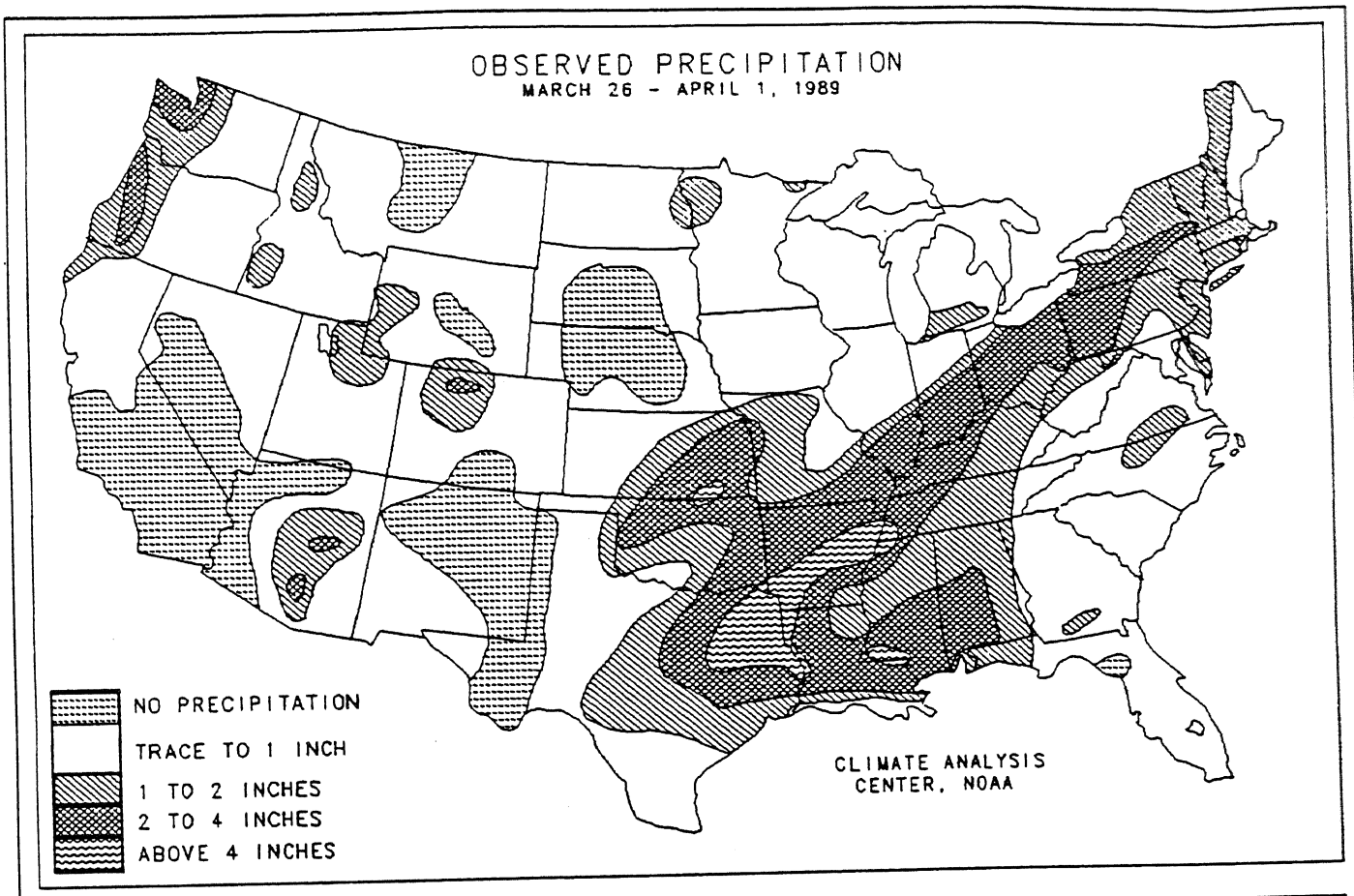
UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF MARCH 26 THROUGH APRIL 1, 1989.

During the first half of the week, a series of low pressure centers located over the nation's midsection triggered severe weather throughout much of the southern halves of the Great Plains and Mississippi Valley. The confrontation of warm, moist southerly flow from the Gulf of Mexico and cold, dry air from Canada produced numerous thunderstorms that were accompanied by strong winds, torrential downpours, large hail, and a few tornadoes. Hardest hit regions included the eastern portions of Texas, Oklahoma, and Kansas, western Louisiana, and central Arkansas (see front cover). Farther west, an upper-air disturbance over southern California generated scattered thunderstorms in the Southwest that created urban flooding in Phoenix, AZ while snows blanketed the southern and central Rockies. Unseasonably warm weather in the upper Midwest caused rapid snowmelt over the northern sections of Minnesota, Wisconsin, and Michigan. By mid-week, mild conditions had spread across New England as rapid snowmelt and heavy rains actuated flooding in northern New York, Vermont, and New Hampshire (see Figure 1). In contrast, cold and snowy weather replaced the previously mild conditions across much of the northern Great Plains and upper Midwest as nearly a foot of snow fell on Petersburg, ND. Towards the end of the week, severe weather pushed eastward as a storm system intensified over the lower Ohio Valley and moved northeastward. Strong thunderstorms produced hail and damaging winds in parts of the Southeast and over coastal sections of Virginia and North Carolina and spawned tornadoes in Arkansas, Alabama, Delaware, Virginia, and North Carolina. Colder air behind the storm center changed rain to snow as up to 8 inches whitened the ground in the upper Ohio Valley, eastern Great Lakes, and northern Appalachians. In the Far West, an approaching cold front brought rains to coastal locations of the Pacific Northwest and snows to the higher elevations of the Cascades.

Based upon the River Forecast Centers data, up to 22.1 inches of rain inundated northeastern Texas as most of it fell during March 28 and 29, producing severe flooding across much of the region. In addition, many stations in the southern half of the Great Plains, the lower and middle Mississippi, western Tennessee, and Ohio Valleys, eastern Great Lakes, and northern Appalachians received more than 2 inches of precipitation last week (see Table 1). The precipitation was especially beneficial in the central Great Plains (see last week's Weekly Climate Bulletin, pages 5-6) where up to 5.0 inches was measured in the eastern half of Kansas, the area's first substantial precipitation since last October. Similarly in New England, even though lesser amounts were reported (generally between 1 and 2 inches), the precipitation was welcomed as an unseasonably dry and mild winter has dramatically lowered reservoir levels, prompting some state officials to declare drought emergencies for major cities such as New York. Elsewhere, heavy precipitation was observed in parts of the central Rockies and Cascades. Light to moderate amounts occurred along the northern half of the Pacific Coast, across most of the northern and central Rockies, in portions of Arizona and New Mexico, and throughout much of the eastern half of the country. Little or no precipitation fell along the southern half of the Pacific Coast, on the Great Basin, the north-central Great Plains, southern Texas, and in portions of Florida and along the south Atlantic Coast.

Almost the entire contiguous U.S. experienced above normal weekly temperatures as the greatest positive departures (between +10° and +14°F) were located in the central Great Plains, Midwest, and mid-Atlantic (see Table 2). Dozens of stations tied or set new daily maximum temperature records during the week as highs in the eighties extended northward into South Dakota, Iowa, New York, and Massachusetts (see Figure 2), while no subzero readings were observed in the lower 48 states (see Figure 3). The only subnormal weekly temperatures were reported in portions of the Pacific Northwest and eastern Alaska. The greatest negative departures were found in the latter area as temperatures averaged between 5° and 13°F below normal (see Table 3).


OBSERVED PRECIPITATION
MARCH 26 - APRIL 1, 1989
NO PRECIPITATION
TRACE TO 1 INCH
1 TO 2 INCHES
2 TO 4 INCHES
ABOVE 4 INCHES
CLIMATE ANALYSIS
CENTER, NOAA

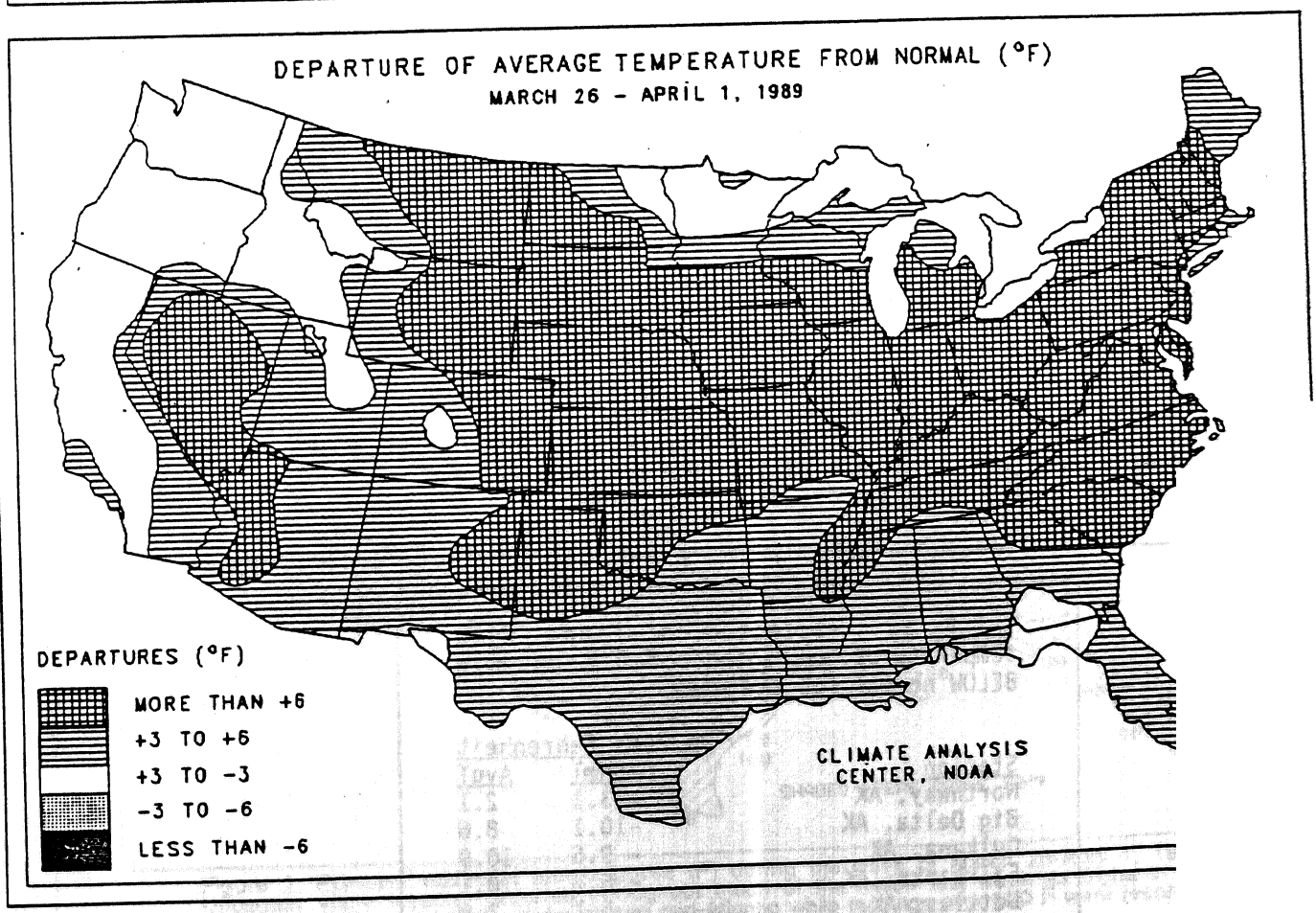

DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)
MARCH 26 - APRIL 1, 1989
DEPARTURES (°F)
MORE THAN +6
+3 TO +6
+3 TO -3
-3 TO -6
LESS THAN -6
CLIMATE ANALYSIS
CENTER, NOAA

TABLE 1. Selected stations with two or more inches of precipitation for the week.

Station	Total(In)	Station	Total(In)
Longview/Gregg Co., TX	14.16	Wichita/McConnell AFB, KS	2.44
Pine Bluff, AR	4.46	McAlester, OK	2.43
Ft. Worth/Meacham AFB, TX	3.95	Cleveland/Hopkins, OH	2.41
Little Rock, AR	3.83	Pittsburgh, PA	2.36
Memphis, TN	3.50	Lake Charles, LA	2.30
Bradford, PA	3.24	Columbus, OH	2.30
Memphis NAS, TN	3.24	Utica, NY	2.24
Cincinnati, OH	3.14	Youngstown, OH	2.22
Meridian, MS	3.12	Binghamton, NY	2.18
Quillayute, WA	3.09	Baton Rouge, LA	2.18
Ft. Smith, AR	3.07	Shreveport, LA	2.17
Dallas/Ft. Worth, TX	3.06	Oklahoma City, OK	2.13
Evansville, IN	3.06	Wichita, KS	2.12
West Plains, MO	3.04	Parkersburg/Wood Co., WV	2.11
Enid/Vance AFB, OK	2.89	Oklahoma City/Tinker AFB, OK	2.11
Fayetteville, AR	2.82	Akron, OH	2.06
Dayton, OH	2.80	Montgomery, AL	2.05
McComb, MS	2.75	Jackson, TN	2.01
Topeka, KS	2.72	Buffalo, NY	2.00
Erie, PA	2.65	Tuscaloosa, AL	2.00
Dubois, PA	2.44		

TABLE 2. Selected stations with temperatures averaging 10.0°F or more ABOVE normal for the week.

	Degrees F			Degrees F	
Station	Dep.	Ave.	Station	Dep.	Ave.
Lincoln, NE	+13.7	55.8	Roanoke, VA	+11.3	61.5
Sidney, NE	+13.1	50.3	Lynchburg, VA	+11.2	61.3
Concordia, KS	+13.0	58.1	Salisbury, MD	+11.2	59.5
Russell, KS	+12.7	58.1	Ottumwa, IA	+11.2	53.2
Salina, KS	+12.5	59.5	Sioux City, IA	+11.0	51.0
Grand Island, NE	+12.5	53.9	Patuxent River NAS, MD	+10.9	59.8
Altoona, PA	+12.4	53.7	Raleigh/Durham, NC	+10.8	64.2
Topeka, KS	+12.3	59.4	Charlotte, NC	+10.7	65.3
Norfolk, NE	+12.3	51.8	Jackson, KY	+10.7	60.9
Beckley, WV	+12.0	57.2	Quincy, IL	+10.7	55.2
Richmond/Byrd, VA	+11.9	63.5	Dodge City, KS	+10.6	57.3
Bluefield, WV	+11.9	58.7	Burlington, IA	+10.5	53.0
Mt. Washington, NH	+11.9	28.1	Martinsburg, WV	+10.3	56.7
North Omaha, NE	+11.8	54.8	Cape Hatteras, NC	+10.2	64.7
Bradford, PA	+11.8	47.4	Washington/National, DC	+10.2	60.4
Norfolk, VA	+11.5	64.1	Belleville/Scott AFB, IL	+10.2	57.4
Washington/Dulles, VA	+11.5	59.1	Morgantown, WV	+10.2	56.3
Des Moines, IA	+11.5	52.6			

TABLE 3. Selected stations with temperatures averaging 5.0°F or more BELOW normal for the week.

	Degrees Fahrenheit	
Station	DepNml	Avgl
Northway, AK	-13.1	2.1
Big Delta, AK	-10.1	8.6
Gulkana, AK	- 9.6	10.9
Fairbanks, AK	- 6.7	10.1
Bettles, AK	- 5.7	3.8

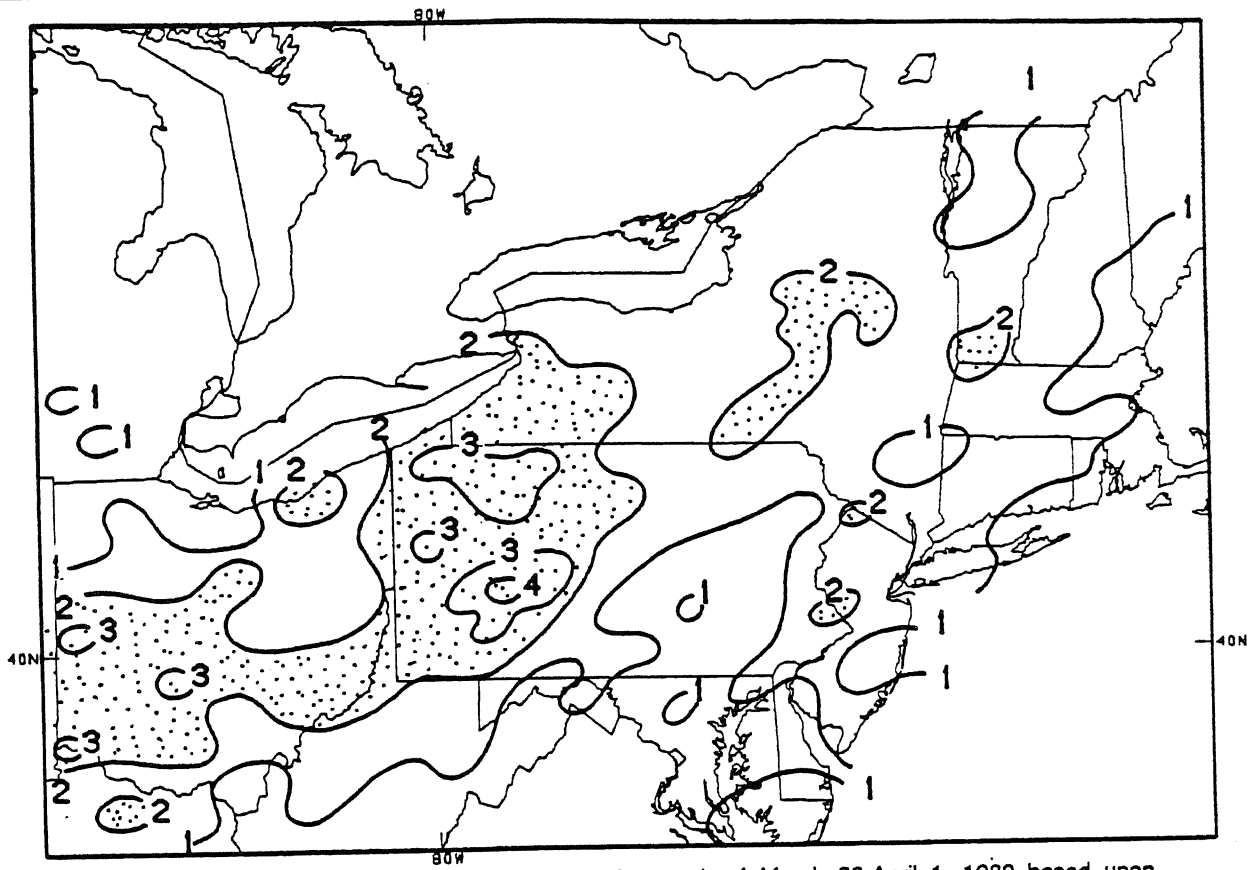


Figure 1. Total precipitation (inches) during the week of March 26-April 1, 1989 based upon first-order synoptic, airways, and the River Forecast Centers stations. Isopleths are only drawn for 1, 2, 3, and 4 inches, and stippled areas are more than 2 inches. Moderate to heavy precipitation in portions of New England provided some relief from this winter's abnormal dryness, while a few areas in northern New York, Vermont, and New Hampshire reported some flooding in response to rapid snowmelt and heavy rainfall.

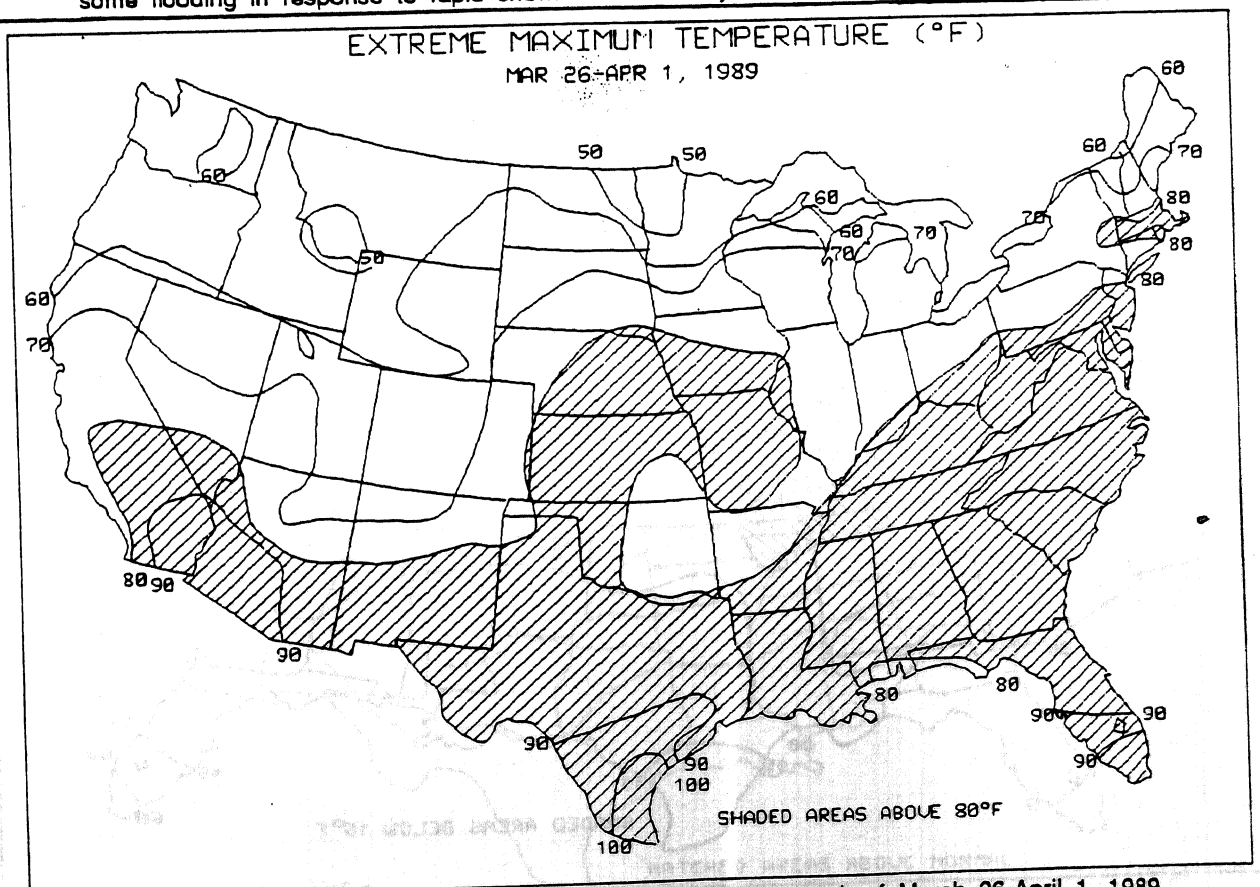


Figure 2. Extreme maximum temperatures (F) during the week of March 26-April 1, 1989. Unusually warm weather occurred throughout much of the nation last week as highs in the eighties were common in the Midwest and mid-Atlantic while readings over 100 F were recorded in southern Texas.

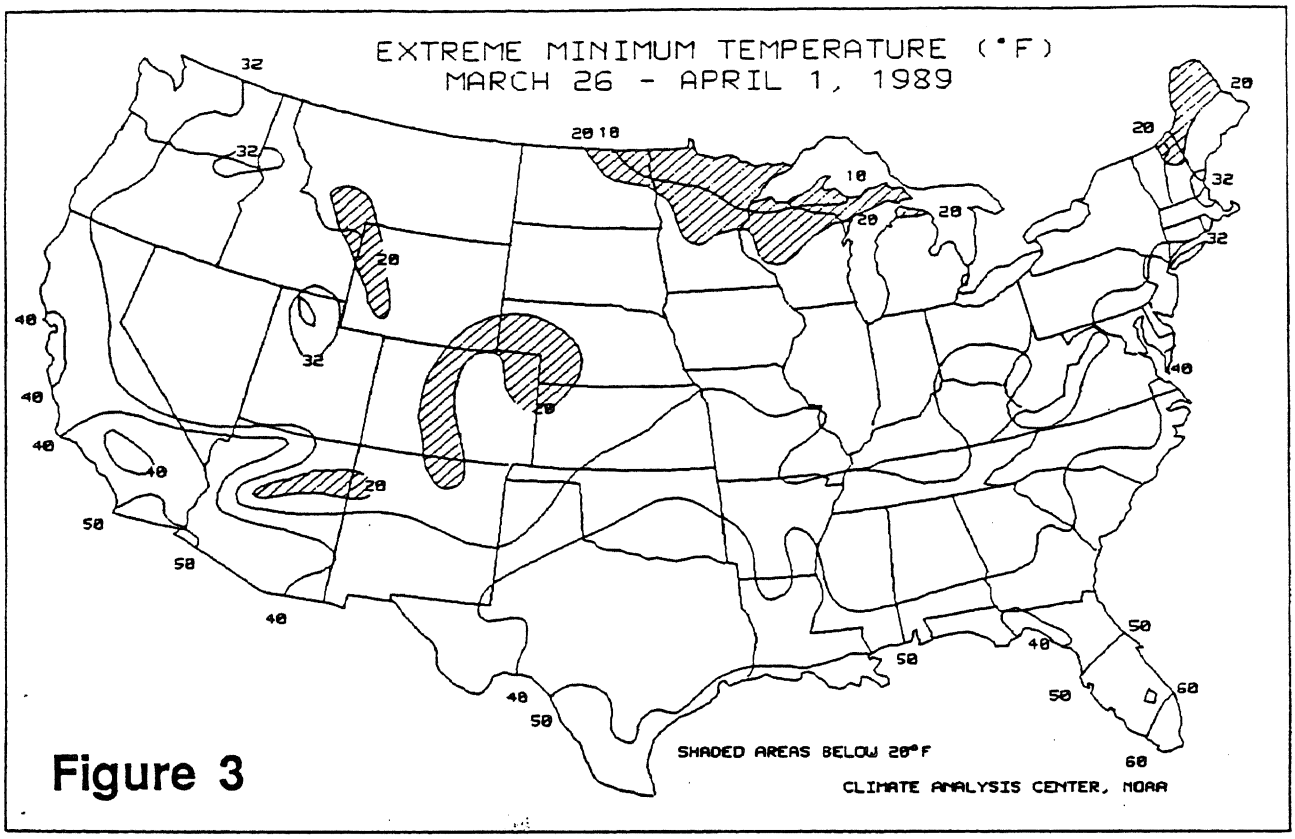
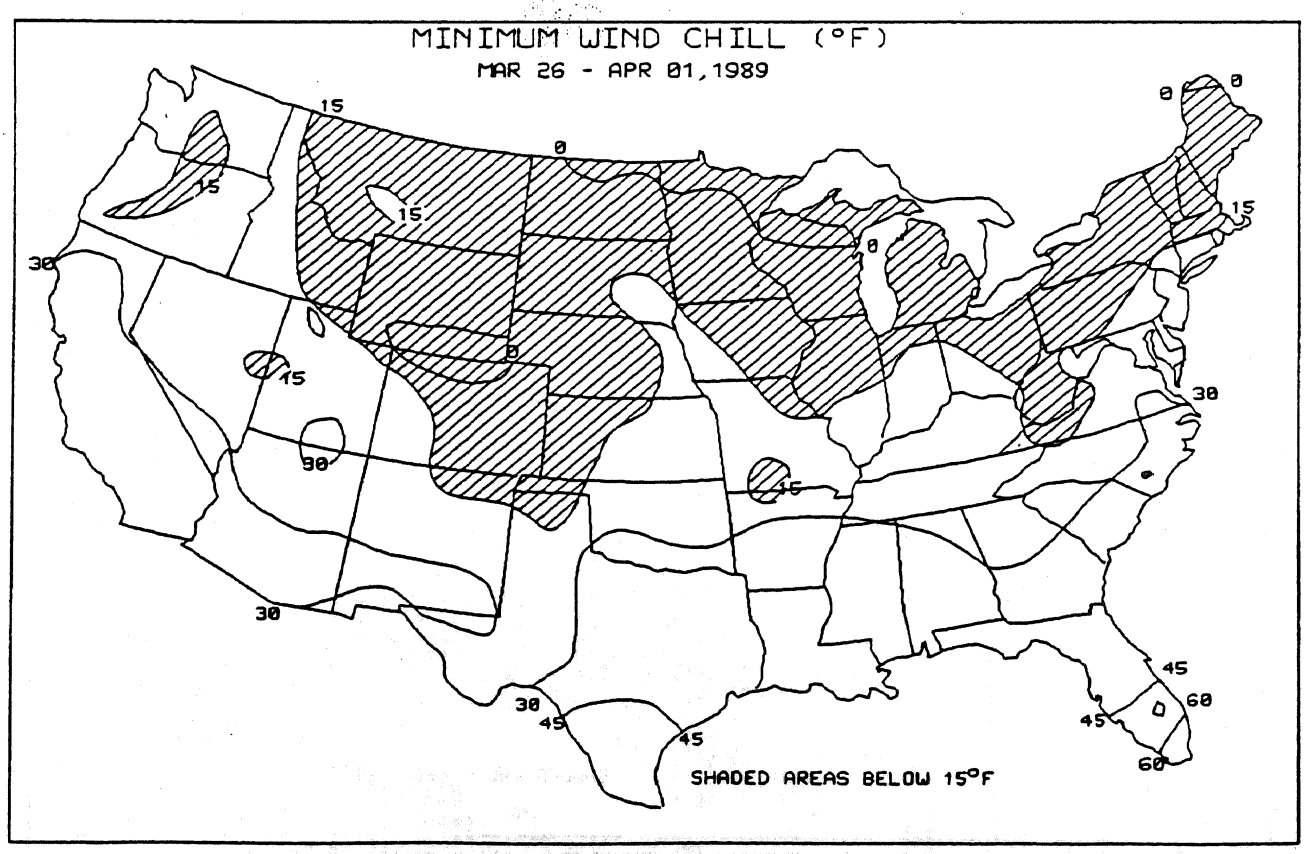
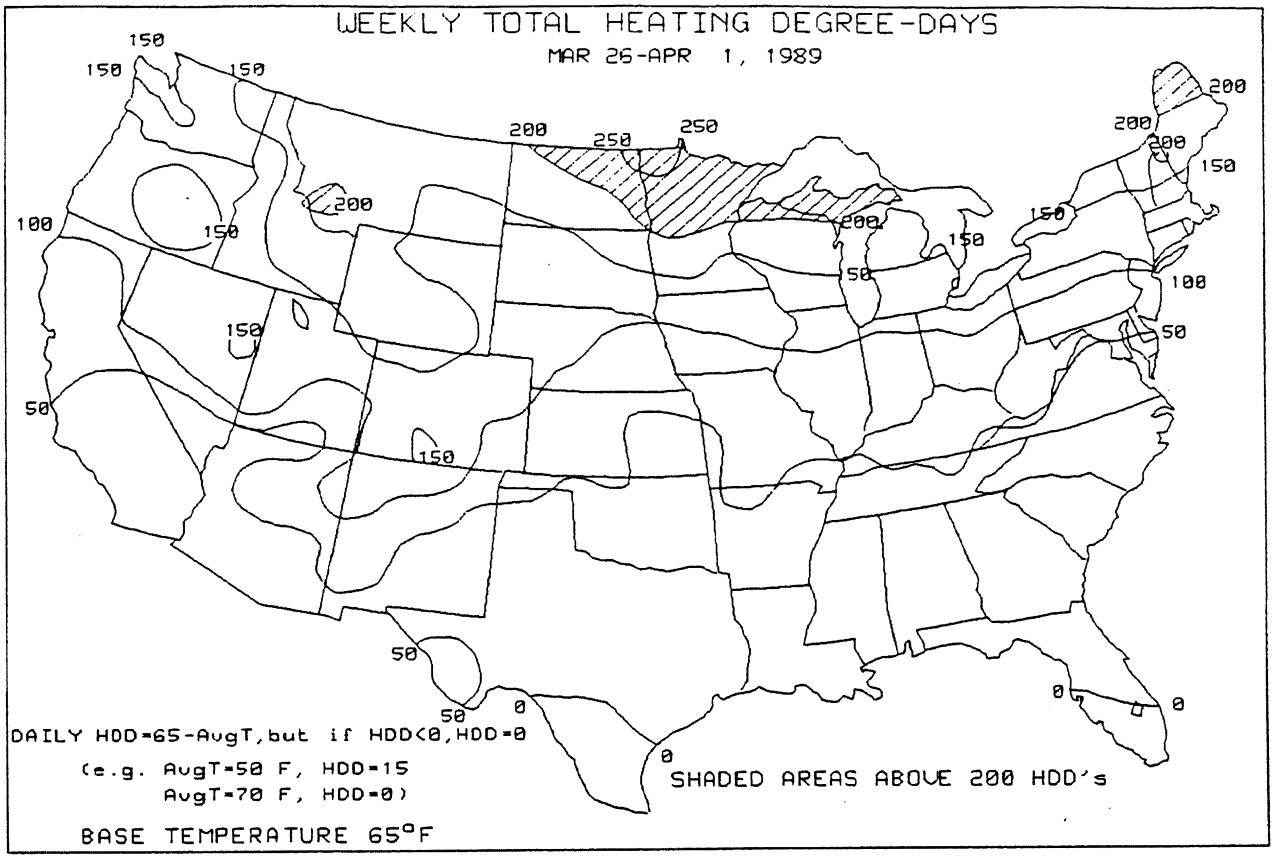


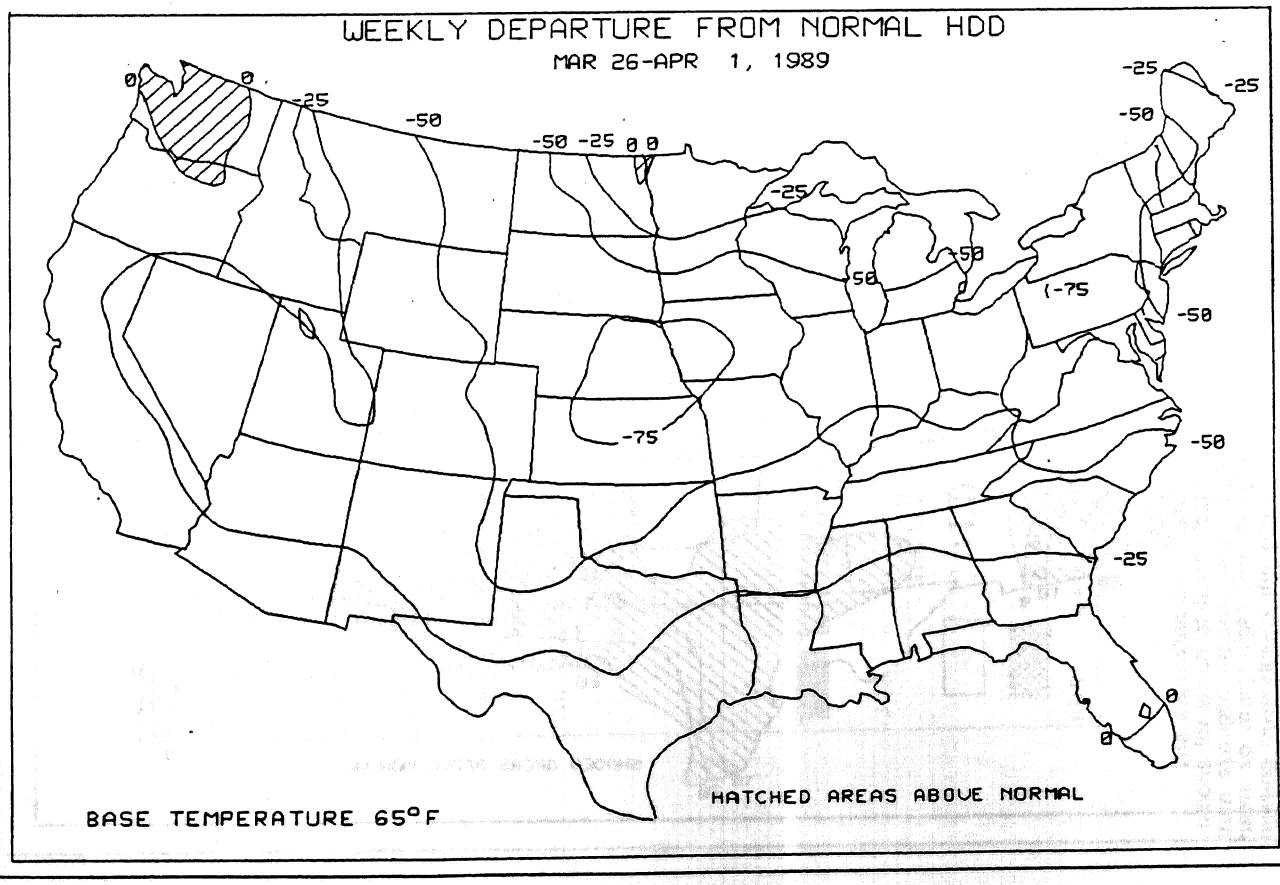
Figure 3

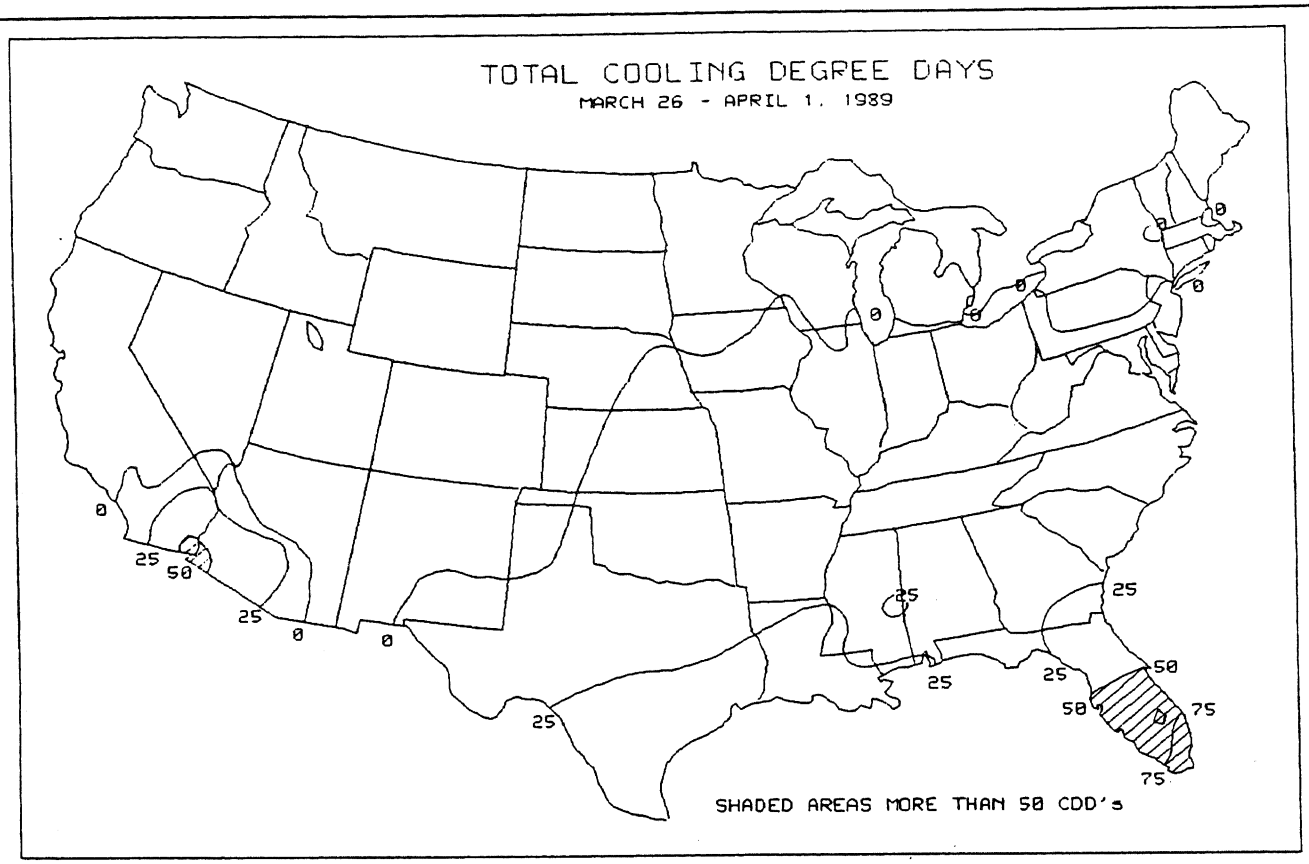
Lows failed to dip below 0°F throughout the lower 48 states as unseasonably warm air covered most of the country (top). The lack of low temperatures limited subzero wind chills to the upper Midwest and northern Maine (bottom).



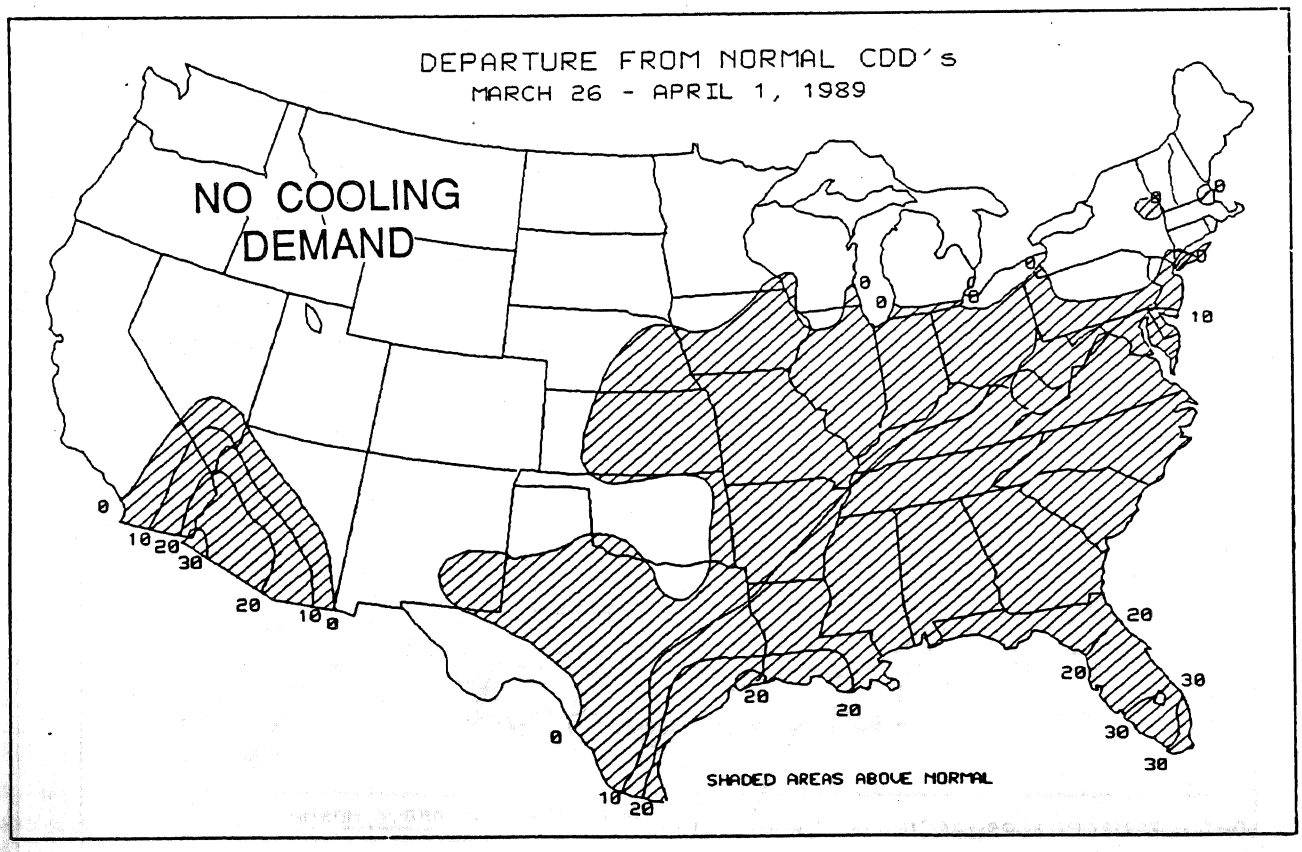


Spring warmth limited areas of 200 HDD's and above to northern Maine and the northern parts of Michigan over through North Dakota (top). Weekly HDD demand was below normal for the entire contiguous U.S. except for most of Washington State (bottom).



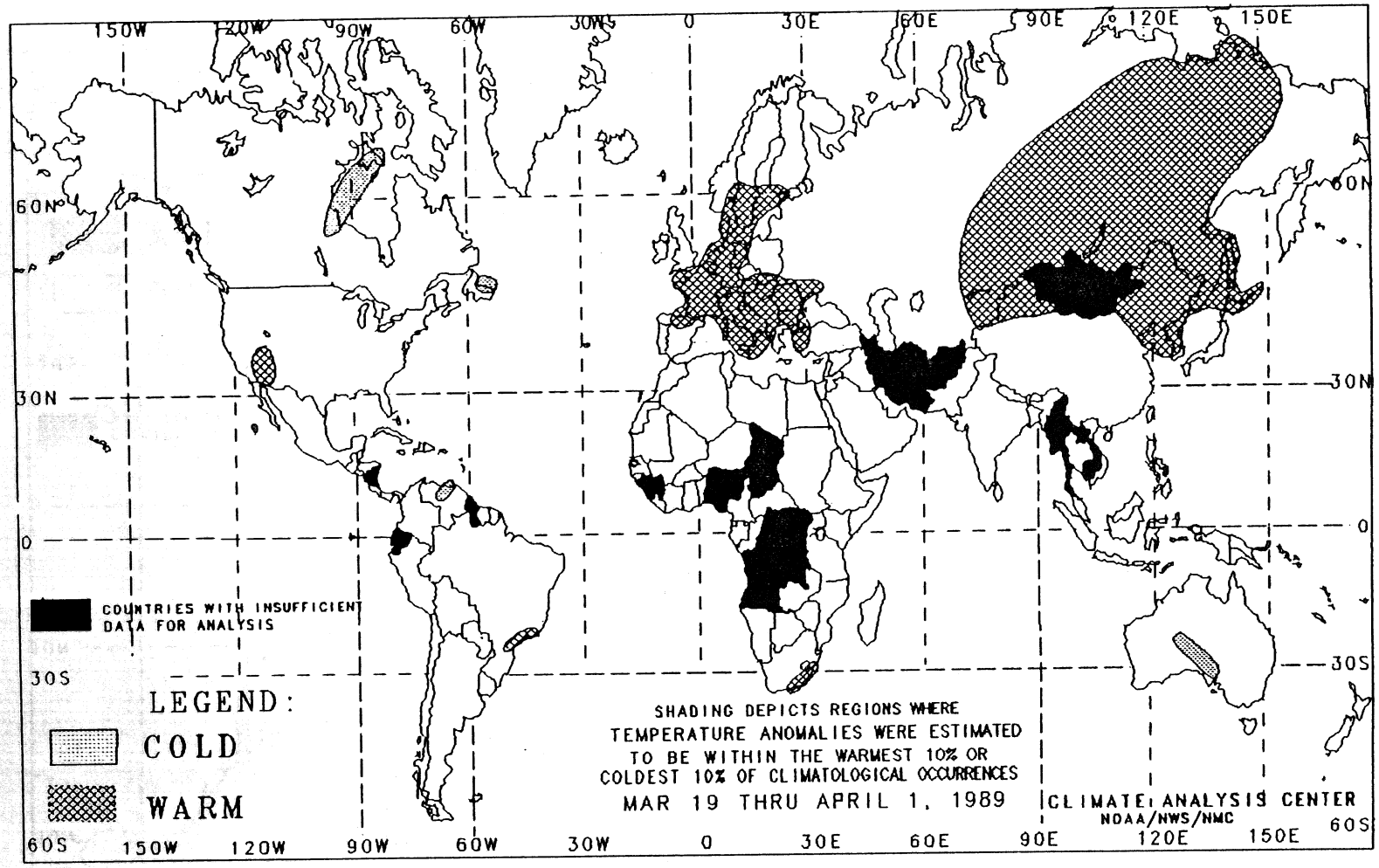


Unseasonably warm weather occurred across most of the nation last week, giving many areas their first cooling degree days of the season (top). As a result, most of the southern half of the U.S. experienced above normal cooling demand except for parts of the southern Great Plains (bottom).



GLOBAL TEMPERATURE ANOMALIES

2 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

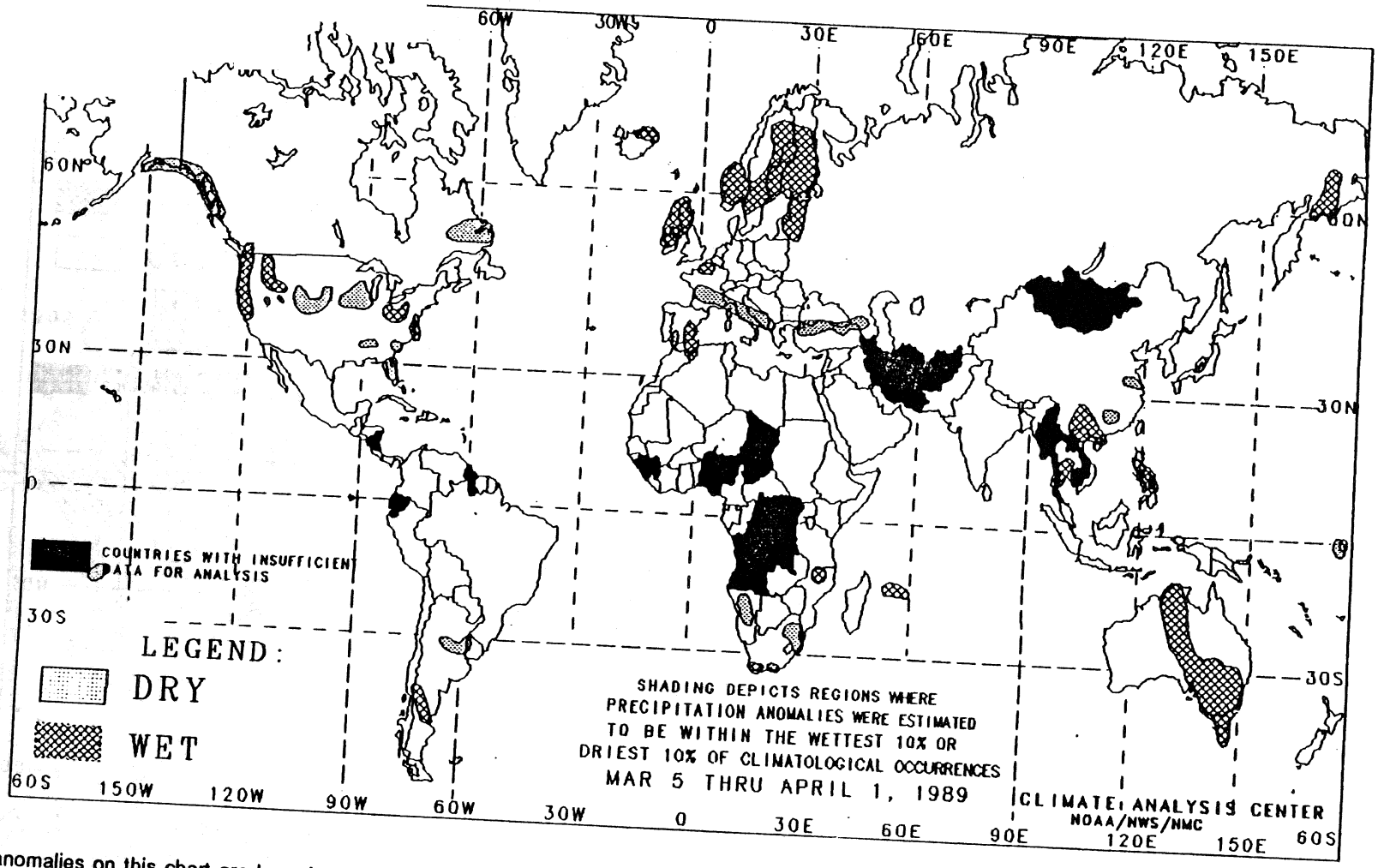
Temperature anomalies are not depicted unless the magnitute of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

This chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

AL PRECIPITATION ANOMALIES

4 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were recieved or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South Africa, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week predipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.